

## **LISTING OF CLAIMS**

The list of claims provided below replaces all prior versions and lists of claims in the application. Thus, claims 1-24 are pending.

Please amend the claims as follows.

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1. (currently amended): A method for cleaning a semiconductor wafer, comprising:

plasma etching a feature into a low K dielectric layer having a photoresist mask, the plasma etching generating etch residues;

10 ashing the semiconductor wafer to remove the photoresist mask, the ashing generating ashing residues; and

removing the etching residues and the ashing residues from the low K dielectric layer having the plasma etched feature, the removing being enhanced by scrubbing the low K dielectric layer of the semiconductor wafer with a wet brush that applies a fluid mixture  
15 including a cleaning chemistry and a wetting agent.

2. (original): A method for cleaning a semiconductor wafer as recited in claim 1, wherein the wetting agent is a surfactant and the cleaning chemistry includes a combination of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and deionized (DI) water.

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3. (original): A method for cleaning a semiconductor wafer as recited in claim 2, wherein the surfactant is selected from a group comprising fluorosurfactants and hydrocarbon surfactants.

4. (original): A method for cleaning a semiconductor wafer as recited in claim 3, wherein the surfactant has a concentration between about 0.005 percent by weight to about 0.1 percent by weight.

5 5. (original): A method for cleaning a semiconductor wafer as recited in claim 3, wherein the surfactant has a concentration of about 0.01 percent by weight.

6. (original): A method for cleaning a semiconductor wafer as recited in claim 2, wherein the combination ratio of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and DI water is between about 10 1:4:10 and about 1:4:30.

7. (original): A method for cleaning a semiconductor wafer as recited in claim 6, wherein the combination ratio of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and DI water is about 1:4:20.

15 8. (original): A method for cleaning a semiconductor wafer as recited in claim 1, further comprising:

scrubbing the low K dielectric layer using the brush while applying deionized (DI) water after removing the etching residues and the ashing residues.

9. (currently amended): A method for cleaning a semiconductor wafer,  
comprising:

plasma etching a feature into a low K dielectric layer ~~having~~, the plasma etching  
generating etch residues in and around the feature;

5       subjecting the semiconductor wafer to an ashing operation, the ashing operation  
generating ashing residues; and

scrubbing the low K dielectric layer having the plasma etched feature, using a mixture  
fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured  
to condition the low K dielectric layer to facilitate cleaning of the etch residues and the  
10       ashing residues with the cleaning chemistry.

10. (original): A method for cleaning a semiconductor wafer as recited in  
claim 9, further comprising:

scrubbing the low K dielectric layer using the brush while applying deionized (DI)  
15       water after removing the etching residues and the ashing residues.

11. (original): A method for cleaning a semiconductor wafer as recited in  
claim 9, wherein the wetting agent is a surfactant and the cleaning chemistry includes a  
combination of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and deionized (DI) water.

20       12. (original): A method for cleaning a semiconductor wafer as recited in  
claim 11, wherein the surfactant is selected from a group comprising fluorinated surfactants  
and hydrocarbon surfactants.

13. (original): A method for cleaning a semiconductor wafer as recited in claim 11, wherein the surfactant has a concentration between about 0.005 percent by weight to about 0.1 percent by weight.

5 14. (original): A method for cleaning a semiconductor wafer as recited in claim 11, wherein the surfactant has a concentration of about 0.01 percent by weight.

15. (original): A method for cleaning a semiconductor wafer as recited in claim 11, wherein the combination ratio of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and DI water is between about  
10 1:4:10 and about 1:4:30.

16. (original): A method for cleaning a semiconductor wafer as recited in claim 11, wherein the combination ratio of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and DI water is about 1:4:20.

17. (currently amended): A method for cleaning a semiconductor wafer,  
comprising:

plasma etching a feature into a low K dielectric layer ~~having~~, the plasma etching  
generating etch residues in and around the feature;

5       subjecting the semiconductor wafer to an ashing operation, the ashing operation  
generating ashing residues; and

scrubbing the low K dielectric layer having the plasma etched feature, using a mixture  
fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured  
to condition the low K dielectric layer to facilitate cleaning of the etch residues and the  
10       ashing residues with the cleaning chemistry; and

scrubbing the low K dielectric layer having the plasma etched feature, using the brush  
while applying deionized (DI) water after removing the etching residues and the ashing  
residues.

15       18. (original): A method for cleaning a semiconductor wafer as recited in  
claim 17, wherein the wetting agent is a surfactant and the cleaning chemistry includes a  
combination of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and deionized (DI) water.

19. (original): A method for cleaning a semiconductor wafer as recited in  
20       claim 17, wherein the surfactant is selected from a group comprising fluorinated surfactants  
and hydrocarbon surfactants.

20. (original): A method for cleaning a semiconductor wafer as recited in  
claim 18, wherein the surfactant has a concentration between about 0.005 percent by weight  
25       to about 0.1 percent by weight.

21. (original): A method for cleaning a semiconductor wafer as recited in claim 18, wherein the surfactant has a concentration of about 0.01 percent by weight.

5 22. (original): A method for cleaning a semiconductor wafer as recited in claim 18, wherein the combination ratio of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and DI water is between about 1:4:10 and about 1:4:30.

10 23. (original): A method for cleaning a semiconductor wafer as recited in claim 18, wherein the combination ratio of  $\text{NH}_4\text{OH}$ ,  $\text{H}_2\text{O}_2$ , and DI water is about 1:4:20.

24. (currently amended): A method for cleaning a semiconductor wafer,  
comprising:

plasma etching a feature into a low K dielectric layer ~~having~~, the plasma etching  
generating etch residues in and around the feature;

5       subjecting the semiconductor wafer to an ashing operation, the ashing operation  
generating ashing residues; and

scrubbing the low K dielectric layer having the plasma etched feature, using a mixture  
fluid including a cleaning chemistry and a wetting agent, the wetting agent being configured  
to condition the low K dielectric layer to facilitate cleaning of the etch residues and the  
10       ashing residues with the cleaning chemistry, the wetting agent being a surfactant and the  
cleaning chemistry being a standard clean-1 (SC-1) solution including a combination of  
NH<sub>4</sub>OH , H<sub>2</sub>O<sub>2</sub>, and deionized (DI) water, the surfactant having a concentration between  
about 0.005 percent by weight to about 0.1 percent by weight, combination ratio of NH<sub>4</sub>OH ,  
H<sub>2</sub>O<sub>2</sub>, and DI water being between about 1:4:10 and about 1:4:30; and

15       scrubbing the low K dielectric layer having the plasma etched feature, using the brush  
while applying deionized (DI) water after removing the etching residues and the ashing  
residues.